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A SYSTEM AND METHOD OF APPLYING ADAPTIVE CONTROL
TO THE CONTROL OF PARTICLE ACCELERATORS
WITH VARYING DYNAMICS BEHAVIORAL CHARACTERISTICS
USING A NONLINEAR MODEL PREDICTIVE CONTROL TECHNOLOGY

5   ABSTRACT OF THE DISCLOSURE

6   The present invention provides a method for

7   controlling nonlinear control problems within particle

8   accelerators. This method involves first utilizing

9   software tools to identify variable inputs and controlled

10   variables associated with the particle accelerator, wherein

11   at least one variable input parameter is a controlled

12   variable. This software tool is further operable to

13   determine relationships between the variable inputs and

14   controlled variables. A control system that provides

15   variable inputs to and acts on controller outputs from the

16   software tools tunes one or more manipulated variables to

17   achieve a desired controlled variable, which in the case of

18   a particle accelerator may be realized as a more efficient

19   collision.

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